

Appl. No. 10/774,326
Amdt. Dated April 11, 2005
Reply to Office Action of January 10, 2005

PATENT
Atty. Dkt. No. 81846.0035
Customer No. 26021

REMARKS

This application has been carefully reviewed in light of the Office Action dated January 10, 2005. Claims 1, 4-7, and 11-17 remain in this application. Claims 1, 7, 13, and 17 are the independent claims. Claims 1, 4-5, 7, and 11-17 have been amended. Claims 2-3, 8-10, and 18-20 have been cancelled without prejudice. It is believed that no new matter is involved in the arguments amendments presented herein. Reconsideration and entrance of the amendment in the application are respectfully requested.

Drawing Objections

On page 2 of the Office Action, the drawings were objected to under 37 CFR §1.121(d) because Figure 28 included Japanese lettering. In response, Figure 28 has been amended to address the above objection. Reconsideration and withdrawal of the above rejection are respectfully requested.

Claim Language Suggestions

On page 2 of the Office Action, the Examiner suggested inserting the word “the” before the word “solar” in line 4 of Claim 18 and line 4 of Claim 19. However, the suggestion is moot in view of cancellation of these claims.

Non-Art-Based Rejections:

On Page 3 of the Office Action, Claims 4-5, 8, 10-16, and 18-19 were rejected under 35 USC §112, second paragraph, for indefiniteness. In response, Claims 4-5, 11-13, and 15 have been amended to comply with 35 USC §112. Rejection of Claims 8, 10, and 18-19 is moot in view of cancellation of these claims. Reconsideration and withdrawal of the above rejection are respectfully requested.

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Amendments to the Drawings:

The attached sheet of drawings includes FIGS. 26, 27, and 28 with changes to FIG. 28.

Attachment: Replacement Sheet

Annotated Sheet Showing Changes

Art-Based Rejections:

Claims 7-9 and 12-20 were rejected under 35 USC §102(b) over JPN 2000-226908 (Hiroshi et al.); Claims 7-12 were rejected under 35 USC §102(b) over JPN 11-200561 (Yoshitaka et al.); Claims 1-5 and 7-12 were rejected under 35 USC §103(a) over Yoshitaka in view of USPN 6,525,264 (Ouchida); Claim 6 was rejected under 35 USC §103(a) over Yoshitaka in view of USPN 6,365,824 (Nakazima). Applicant respectfully traverses the rejections and submits that the claims herein are patentable in light of the clarifying amendments above and arguments below.

The Hiroshi Reference

Hiroshi is directed to a solar battery module fixed to base material of roof tiles and to preventing the solar battery module from floating up from the roof tile by wind force blowing on the roof. (*See, Hiroshi, Abstract; Paragraph [0007]*).

The Yoshitaka Reference

Yoshitaka is directed to a solar cell holding tile that is positioned on a sheathing roof board by utilizing a batten for holding a tile. (*See, Yoshitaka, Abstract; Paragraphs [0004]-[0008]*).

The Ouchida Reference

Ouchida directed to a thin-film solar cell module capable of suppressing the photo degradation and providing large output. The thin-film solar cell module of a light transmission type includes a light-transmissive substrate, a front electrode layer, a photovoltaic conversion layer, and a rear electrode layer. The front electrode layer, the photovoltaic conversion layer, and the rear electrode layer are sequentially laminated on the light-transmissive substrate. A heat retention

member covers the rear electrode layer, and a sealing layer is provided for sealing the rear electrode layer. (*See, Ouchida, Col. 3, lines 16-30*).

The Claims are Patentable Over the Cited References

The present application is generally directed to solar cell technology for building applications.

Claim 1:

As defined by amended independent Claim 1, a solar cell module includes a base member and a solar cell provided on an upper surface of base member. An insulating support member is provided on a lower surface of base member. The solar cell module is configured to be laid together with tiles on the roof of a building. The base member is rectangular and includes a ridge-side surface projecting downwards with respect to a surface of a roof panel for mounting the solar cell module. The base member includes an eaves-side surface, a trough-side surface, and an anti-trough-side surface. The solar cell module includes a projecting part provided on the trough-side surface and the anti-trough-side surface of the base member, along the ridge-side to the eaves-side of the roof. The projecting part is configured to overlap a trough-section of the adjacent tile or the trough section of the adjacent solar module.

The applied references do not disclose or suggest the above features of the present invention as defined by amended independent Claim 1. In particular, the applied references do not disclose or suggest, "a projecting part provided on the trough-side surface and the anti-trough-side surface of the base member, along the ridge-side to the eaves-side of the roof, and configured to overlap a trough-section of the adjacent tile or the trough section of the adjacent solar module," as required by amended independent Claim 1.

The Office Action concedes that Yoshitaka does not specifically teach the base member and support member recited in Claim 1 of the present application. The Office Action purports that Ouchida teaches a thermal insulation layer in FIG. 12 and in Col. 18, lines 23-44. However, neither Yoshitaka nor Ouchida teach or suggest a projecting part that is formed integral with the insulating support member, wherein the projecting part is provided below the overlapping part of the base member and configured to overlap the trough section of the adjacent tile or the trough section of the adjacent solar cell module as recited in independent Claim 1, as amended herein.

In contrast, the present invention discloses the base member 62 having an overlapping part 68a and a projecting part 110a provided below the overlapping part 68a of the base member 62. The projecting part 110a is formed integral with the insulating support member 110. (*See, Specification, FIGS. 25-27; Page 43, line 23 to Page 44, line 3*). Moreover, in the present invention, even if the relative positions of the solar cell modules and the tiles are displaced when the solar cell modules and the tiles are laid side by side in a row, the displacement can be absorbed by the overlapping amount of the trough section and the projecting part overlapping the trough section.

Yoshitaka does not disclose or suggest these features of the present invention as required by amended independent Claim 1, and the ancillary Ouchida reference does not remedy the deficiencies of Yoshitaka.

Claim 7:

As defined by amended independent Claim 7, a method of laying solar cell modules together with tiles on the roof of a building. The method includes laying a waterproof member having approximately the same height as the tile and a width

narrower than that of the tile between each solar cell module and one tile which are laid adjacent in the direction of gradient of the roof.

The applied references do not disclose or suggest the above features of the present invention as defined by amended independent Claim 7. In particular, the applied references do not disclose or suggest, "laying a waterproof member having approximately the same height as the tile and a width narrower than that of the tile between each solar cell module and one tile which are laid adjacent in the direction of gradient of the roof," as required by amended independent Claim 7.

The Office Action purports that the tile bodies 2 of Hiroshi read on the instant waterproof members since the tile bodies 2 can be made from aluminum, which is waterproof and incombustible. However, the tile bodies 2 of Hiroshi are formed as an integral part of the roof tile.

The Office Action further purports that the frame members 1C of Yoshitaka read on the instant waterproof members since the frame members 1C can be made from aluminum, which is waterproof. However, the frame members 1C of Yoshitaka are formed as an integral part of the roof tile.

In contrast to Hiroshi and Yoshitaka, the present invention discloses a separate waterproof member that is positioned on a roof of a building between a solar cell module and a common roof tile. Moreover, the present invention discloses that only the solar cell module includes a solar cell. (*See Specification, FIGS. 5A, 7, and 8; Page 16, line 18 to Page 17, line 19*). Moreover, in the present invention, when the solar cell modules and the tiles are laid side by side in a row, the sides of the tiles are displaced from the sides of the tiles of the next row, either upper or lower row, due to the gaps between the tiles. However, this displacement can be corrected by interposing a waterproof member that is narrower than the tiles between each solar cell module and one tile. Various types of waterproof members

that have different widths L1 may be prepared. Then, the waterproof members of any type may be selected in accordance with the displacement and used to correct the displacement easily. Even if the above references are combined, such an advantage cannot be provided.

Hiroshi and Yoshitaka do not disclose or suggest these features of the present invention as required by amended independent Claim 7, and the ancillary Ouchida reference does not remedy the deficiencies of Hiroshi and Yoshitaka.

Claim 13:

As defined by amended independent Claim 13, a method of laying solar cell modules together with tiles on a roof panel. The method includes laying a solar cell module at upper edges of the tiles laid on the roof so that the upper portion of the ridge-side of the tile overlaps the eaves-side of said solar cell module. The method includes arranging fastening strips which prevent solar cell modules from being blown off between the lower portion of the eaves-side of the solar cell module and the upper portion of the ridge-side of said tile. The method includes engaging the fastening strips to the lower portion of the eaves-side of said solar cell module and the upper portion of the ridge-side of said tile.

The applied references do not disclose or suggest the above features of the present invention as defined by amended independent Claim 13. In particular, the applied references do not disclose or suggest, "arranging fastening strips which prevent solar cell modules from being blown off between the lower portion of the eaves-side of the solar cell module and the upper portion of the ridge-side of said tile," as required by amended independent Claim 13.

The Office Action purports that Hiroshi discloses fastening strips 8 for that prevent the solar cell 4 of the solar cell tile 1 from being blown off. However,

Hiroshi secures the solar cell 4 directly to the solar cell tile 1 with the fastening strips 8 without a buffer member interposed therebetween.

In contrast, the present invention discloses one or more gaskets 54 mounted on the ridge-side and eaves-side edges of the solar cell 10. The gaskets are used as buffer members. The present invention discloses that the gaskets 54 function as buffers to protect the solar cell 10 from vibration, impact, and thermal shock resulting from the fastening strips. (*See Specification, FIGS. 18-20; Page 28, line 4 to Page 29, line 4*). Moreover, as shown in FIG. 22A, the present invention is characterized in that the fastening strips are provided in hidden positions of the lower portion of the eaves-side of the solar cell module and the upper portion of the ridge-side of the tile.

Hiroshi does not disclose or suggest these features of the present invention as required by amended independent Claim 13, and the ancillary Ouchida reference does not remedy the deficiencies of Hiroshi.

Independent Claim 17 has been amended in similar manner as discussed above with reference to independent Claim 13. Therefore, as with independent Claim 13, Hiroshi does not disclose or suggest the features of the present invention as required by amended independent Claim 17, and the ancillary Ouchida reference does not remedy the deficiencies of Hiroshi.

Since the applied references do not disclose or suggest the above features of the present invention as required by independent Claims 1, 7, 13, and 17, as amended, those references cannot be said to anticipate nor render obvious the invention which is the subject matter of those claims.

Accordingly, independent Claims 1, 7, 13, and 17, as amended, are believed to be in condition for allowance and such allowance is respectfully requested.

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The remaining claims depend either directly or indirectly from independent Claims 1, 7, 13, and 17 and recite additional features of the invention which are neither disclosed nor fairly suggested by the applied references. Thus, these remaining claims are also believed to be in condition for allowance and such allowance is respectfully requested.

Conclusion

In view of the foregoing, it is respectfully submitted that the application is in condition for allowance. Reexamination and reconsideration of the application, as amended, are requested.

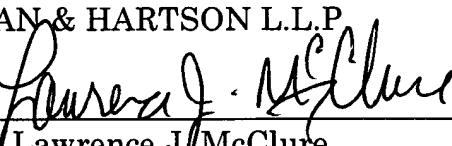
If for any reason the Examiner finds the application other than in condition for allowance, the Examiner is requested to call the undersigned attorney at the Los Angeles, California telephone number (213) 337-6809 to discuss the steps necessary for placing the application in condition for allowance.

If there are any fees due in connection with the filing of this response, please charge the fees to our Deposit Account No. 50-1314.

Respectfully submitted,

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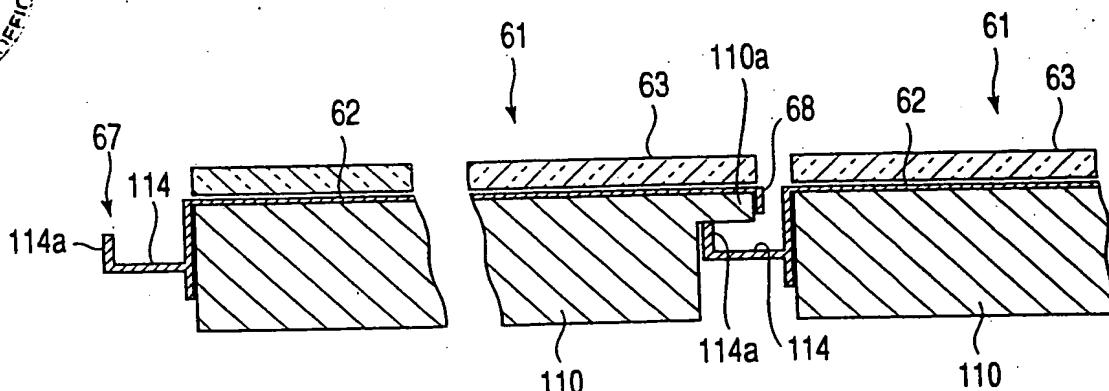


FIG. 26

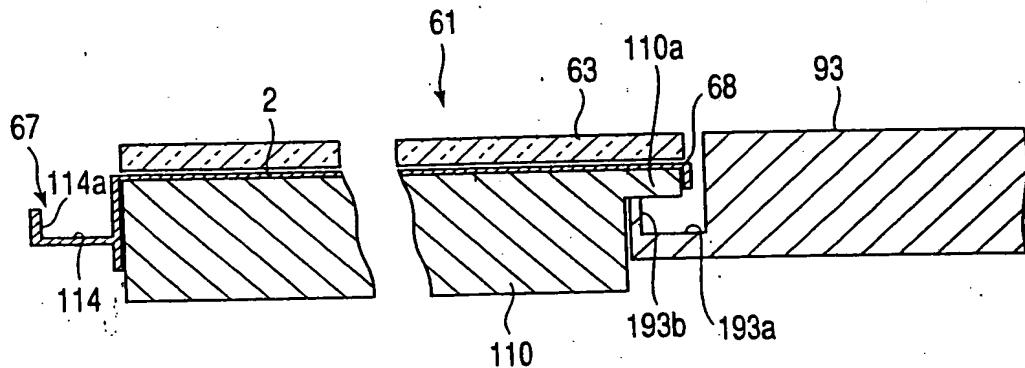


FIG. 27

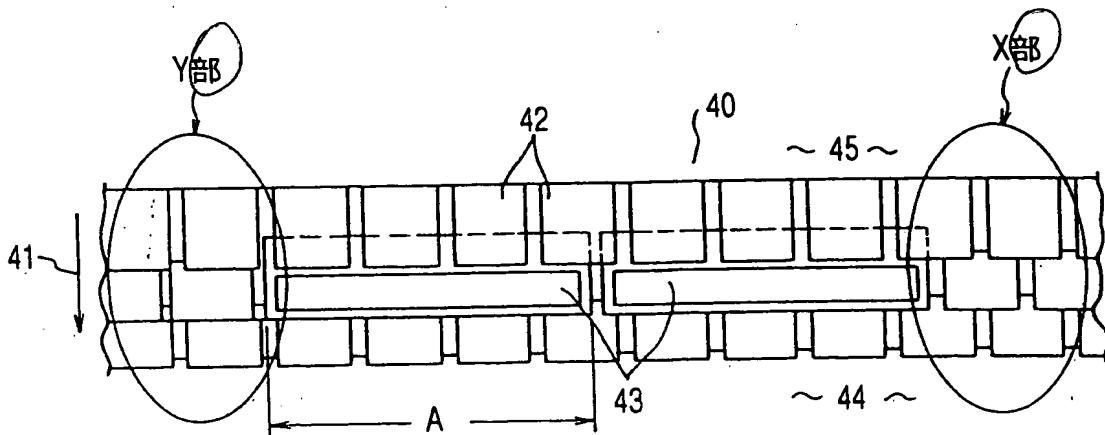


FIG. 28